NATURAL RESOURCES COMMISSION
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SUBJECT: Dredging of Public Freshwater Lakes

1. Purpose

The Lakes Preservation Act (IC 14-26-2) and rules adopted at 312 IAC 11-1 through 312 IAC 11-5 govern excavations from public freshwater lakes. As provided in IC 14-26-2-23(a)(1)(A), a person must obtain a license from the Department of Natural Resources (DNR) before excavating a material along or lakeward of the shoreline or water line of a public freshwater lake.

The definition of "excavate" includes the removal of materials by scooping or digging out. Webster's New Riverside University Dictionary, The Riverside Publishing Company (1984). A form of excavation is "dredging". As applied to a public freshwater lake, "dredging" means the removal of sediment, debris, or other materials from the bed of a lake that results in a measurable change in existing depth or contour, below the elevation of the plane formed by a lake's shoreline or water line, by means of hydraulic suction, a cutterhead dredge, mechanical excavation, a pipeline, hand-held tools, or a combination of these devices.

The rules implicitly consider excavations in the regulation of activities such as the placement of seawalls. Excavations for the construction of new boatwells are addressed at 312 IAC 11-4-5. Neither the Lakes Preservation Act nor 312 IAC 11 otherwise regulate dredging with specificity. The purpose of this document is to provide a framework for DNR's consideration of excavations from public freshwater lakes, particularly in the context of dredging.

This document provides information related to the dredging of lakes and includes:
- Regulatory authority for addressing dredging in public freshwater lakes.
- Guidance to DNR personnel in review of permit applications for dredging projects.
- Explanation of dredging permit conditions for Indiana

2. Background

Dredging projects can be costly and have negative impacts to ecological and recreational resources. Dredging can also have significant beneficial effects. Dredging in areas that continue to receive sediment inputs from watershed streams and other sources is a short-term remedy that is likely to require periodic repetition to maintain desirable water depths. Until the last few years, homeowners (many with small, seasonal cottages) were not usually able to pay the high price of dredging. For that and other reasons, permit requests for dredging of large areas in public freshwater lakes have not been common in previous years.

Relatively large-scale dredging projects in lakes have been conducted only occasionally in the past under permits with no standardized evaluation criteria. With new funding opportunities for in-lake restoration projects through the DNR's Lake and River Enhancement (LARE) program, dredging to restore depth in lakes where watershed sources of sediment have been controlled is becoming more feasible. Requests for permits for these projects, whether funded by LARE or through other sources, are likely to become more numerous in the future. DNR personnel need guidance to provide for consistent reviews of dredging permit requests.

The original legislation that forms the antecedents to today's Lakes Preservation Act was enacted in 1947. The legislation provided a permit should not be approved that would change a lake's "natural condition". As applied in the Lakes Preservation Act, "natural condition" refers to the "water, fish, plant life, and minerals and the natural scenic beauty...as left by nature without man-made additions or alterations....". The original legislation anticipated that "natural condition" was that which existed within 10 years before its effective date, in other words on March 13, 1937. Sedberry v. Department of Natural Resources, 10 Caddnar 14 (2005).

Consideration must also be given to areas within public freshwater lakes that are not part of the "natural condition" that existed in 1937. These include manmade channels, navigation channels, and boatwells. Standards for dredging from these areas are also needed for consistent and effective regulation of public freshwater lakes.

Permitting should be performed with a view to the long-term ecological health of public freshwater lakes. In general, the Lakes Preservation Act anticipates permitting would be based upon the condition of a lake while at the level forming its legal shoreline or water line. Factors might be identified that would support permitting to

address problems peculiar to, or aggravated by, flood or drought. Possible supporting factors regarding consideration for permitting include a hazard to public safety or a dramatic loss of recreational usage. See Sedberry cited previously.

Conditions that may be favorable for issuance of a permit would be related to location, purpose, methods, and timing of the proposed dredging activity to avoid or minimize detrimental impacts to natural resources. Mitigation of the impacts of dredging projects may be required to offset unavoidable damages to aquatic and wetland plants or other natural resources.

3. Reviews of Permit Applications

A. Definitions

In addition to terms defined in the Lakes Preservation Act, 312 IAC 1, and 312 IAC 11-2, the following definitions apply throughout this document:

"Cutterhead dredge" means a hydraulic pipeline dredge with an active rotating auger positioned on the machine's suction inlet.

"Dredging" means the removal of sediment, debris, or other materials from the bed of a lake that results in a measurable change in existing depth or contour, below the elevation of a lake's plane as formed by the shoreline or water line, by means of hydraulic suction, a cutterhead dredge, mechanical excavation, a pipeline, hand-held tools, or a combination of these devices.

"Excavate" means the removal of materials by scooping or digging out and includes dredging.

"Hydraulic pipeline dredge" means equipment that removes sediment, debris, or other material by use of a suction pump connected to a pipeline through which excavated material can be transported off site as an aqueous slurry.

"Mechanical excavation" means the use of a device other than a hydraulic pipeline dredge, such as a clamshell, dragline, hydro-hoe, or similar equipment, to remove material from the bed of a lake.

"Navigation channel" means a watercourse less than 500 feet wide, which is within the shoreline or water line of a public freshwater lake, that provides lawful boating access to a lake or between lakes.

B. Considerations

A permit is required under the Lakes Preservation Act and 312 IAC 11-1 through 312 IAC 11-5 to dredge the lakebed of a public freshwater lake.

The DNR shall not issue a permit to dredge a lakebed if the activity would likely cause significant environmental harm, either directly or indirectly, to the natural resources of the lake unless the permit is conditioned to provide appropriate mitigation.

The DNR shall consider the extent to which the proposed dredging site is in its natural condition and the resulting need to protect the condition.

The DNR may condition a permit for dredging to reduce the likelihood and impacts of any adverse effects, either direct or indirect, on the natural resources of a lake and to address any special concerns, as required by law.

A person applying for (or sponsoring a person applying for) a dredging permit must obtain any Section 401 Water Quality Certification required by the Indiana Department of Environmental Management and any Section 404 Dredge and Fill Permit required by the U.S. Army Corps of Engineers. More information is available through the Indiana Department of Environmental Management.

C. Seasonal Restrictions

To qualify for a dredging permit, the work must ordinarily be initiated after June 30 and completed by December 31 of the same year. Upon a written request by the permittee, and after the DNR has considered any additional possible adverse impacts and the likelihood of completion of the project, the DNR may do the following:

(1) Grant an extension for dredging activities if the work was initiated before December 1 where:

- mechanical excavation is conducted, through January 31; or
- a hydraulic pipeline dredge is used, through February 28.

(2) Allow dredging during any time of year during the period of time authorized in writing by the DNR Division of Fish and Wildlife along a shoreline or water line within a "developed area", if the following criteria are met:

- Where the water depth does not exceed five feet and the area of the dredging project does not affect more than either 10 percent of the lakebed or five acres.
- The dredging project does not include more than 25 percent of the number of man-made channels on the lake. The number of man-made channels is the number of separate openings to the main area of the lake.
- If the dredging project is located within a man-made channel or navigational channel, at least 75 percent of the adjacent shoreline or water line is a developed area.

D. Purposes for Dredging That Are Approvable

A dredging permit is approvable to do any of the following:

- Improve and maintain public boating access.
- Restore water depth by removing accumulated sediment from lawfully established man-made channels, navigation channels, boatwells, or other authorized excavated areas involving individual property frontage.
- Remove sediment, debris, or other materials that impair the natural resources of the lake.
- Restore the natural resources of a lake as part of an approved lake restoration plan, such as a LARE program diagnostic study or sediment removal plan.

A permit is approvable upon a proper showing under the Lakes Preservation Act and 312 IAC 11-1 through 312 IAC 11-5 that dredging would do any of the following:

- Restore the original depth of a lawful man-made channel or navigation channel.
- Restore original depth in, or conduct incidental dredging associated with the expansion of, a lawful man-made channel, navigation channel, boatwell, or underwater beach.
- Restore original depth outside a man-made channel where dredging was previously permitted or was established by a lawful nonconforming use.
- Restore the original depth by removing a delta lakeward of the mouth of an inlet.
- Remove improperly disposed waste, contaminated materials, excess nutrients, or a pollution source, if the Indiana Department of Environmental Management has provided any necessary approvals.
- Remove a nuisance structure, debris, or obstruction that poses a threat to public safety or detracts from the natural resources of the lake.
- Restore the natural contour and water depth where unconsolidated sediments or other materials have accumulated.
- Improve the economic, recreational, and ecological value of a lake under the auspices of a large-scale program, such as the federal Water Resources Development Act.
- Restore a lawful dredged area where the area has reverted to its original predredged condition so as to appear and function as a nondredged area.
- Enhance the public trust under 312 IAC 11-5-3.

E. Purposes for Dredging That Are Not Approvable

A permit for dredging generally is not approvable to do any of the following:

- Affect a significant wetland located outside a man-made channel that has not been dredged.
- Affect a bog, fen, muck flat, sand flat, or marl beach identified in the Natural Community Classification System by the Division of Nature Preserves.
- Enhance solely the perceived aesthetic appearance of an area.
- Remove solely aquatic vegetation where lawful dredging did not previously occur.
- Increase water depth in naturally shallow areas to improve boat access, unless anthropogenic actions contributed to a reduction in natural water depth.
- Increase water depth lakeward of the mouth of a man-made channel in a naturally shallow area, which was not been previously dredged, to improve boat access.
- Deepen localized, natural areas of muck substrates or remove deposits above these substrates.

F. Potential Permit Conditions

The DNR may impose conditions on a dredging permit to reduce the likelihood and impacts of adverse direct or indirect effects on recreational use of a lake, the natural resources of a lake, or to address a special concern. Conditions may include the following:

- Dredging activities would not unduly restrict navigation, pose a safety risk, or constitute a nuisance beyond

what is necessary to a properly implemented permit, and that appropriate measures would alert the public to the navigational impediments and boating risks associated with the activities.
• Erosion from disturbed areas landward of the shoreline or water line and turbidity caused by operations in the lake would be controlled to prevent adverse impacts.
• Reasonable steps would be taken during dredging to reduce adverse impacts to water quality, natural resources, or the natural character of the lake or wetlands adjoining the lake.
• The surface contours of boundaries of dredged areas would be sloped gradually to the water line or shoreline to avoid damage to or destabilization of shoreline structures, taking into consideration specific project circumstances, such as the constraints posed by a narrow man-made channel.
• Dredging activities would not be conducted in water that is continuously more than six feet deep or beyond a distance of 150 feet from the shoreline or water line, unless warranted by special circumstances, such as a naturally shallow lake.
• Dredging activities would be conducted by or with the acquiescence or permission of affected riparian owners, as required by law.
• Structural components of biotic habitat, such as logs or boulders, that have been removed from the lakebed during the dredging process may be required to be replaced on site or in immediately adjacent areas, with due consideration for navigational safety.
• An adequate depth contour profile map would be provided, at a level of detail commensurate with the scale of the project and with site-specific geographic coordinates, so changes in post-dredging sediment accumulation can be monitored.
• A suitable plan would be provided for off-site disposal or use of all dredged sediments, debris, spoil, or similar materials to assure the materials would not reenter the lake or otherwise adversely affect lake.
• Surveys of potentially affected aquatic plants, fish, and wildlife (with particular attention to state or federally listed species) would be prepared at a level of detail commensurate with the scale of the project.
• Reasonable steps would be taken during dredging activities at a degree commensurate with the scale of the project to determine the presence and extent of any contaminated sediments and to minimize off-site displacement of dredged materials and associated contaminants within the lake or in return flows of water to the lake.

G. Lawful Nonconforming Uses

Whether prior dredging of an existing channel, boatwell, or other area has been authorized or is a lawful nonconforming use is a determination of status under IC 4-21.5-3-5(a)(5) and 312 IAC 11-5-2.

4. Reasoning for Permit Conditions

The following provides additional detail regarding various aspects of permit reviews and the reasoning in support of permit conditions:

A. Evidence to Support a Dredging Permit for Site Maintenance

Permit conditions may differ depending upon whether the activity would take place in an area of a public freshwater lake that has or one that has not been altered by lawful human activities. Typically, a maintenance dredging permit can be issued without disturbing a lake's natural condition at a man-made channel, a navigation channel, an area where a dredging permit was previously issued, or an area with a lawful nonconforming use.

For other sites within the lake, a permit applicant for maintenance dredging must demonstrate evidence of sediment deposition (other than naturally accumulating shallow or muck areas) since March 13, 1937. The following factors would contribute to this demonstration:
• Prevailing winds and waves caused the accumulation of sediments from another area of deposition (for example, a sand bar).
• Nutrient recycling from sediment impaired water quality and fish habitat in highly eutrophic shallow lakes.
• Improperly disposed waste, including contaminated earthen materials, was deposited and should be removed.
• Sedimentation attributable to human activities where:
(1) erosion and sediment control practices ameliorated historical watershed inputs; and
(2) dredging is a recommended component of an integrated plan for lake restoration.

Conditions may be contingent upon the size and scope of a project. Small-scale projects may not require the same scrutiny as large-scale projects because the potential for adverse impacts is less. A review of permitted dredging projects from 1988 through mid-2007 revealed that a rational breakpoint for the level of scrutiny, from

ecological and administrative perspectives, is approximately 5,000 square feet of affected area. Accordingly, four of the standard conditions regarding project planning and preparation apply only to the large-scale projects. The breakpoint is applicable not only to individual project sites, but also to aggregations of smaller sites on the same lake whose combined size meets the 5,000 square foot criterion. Obtaining the information necessary to fulfill the four standard conditions may be achieved through a LARE grant that funds a significant portion of the sediment removal.

B. Methods and Principles

Careful selection of the methods by which dredging is conducted and an understanding of preexisting site conditions can reduce potential negative impacts of dredging. The following should be considered, based on appropriateness to the specific circumstances:

- Use of practices that avoid disturbance of adjacent nontarget areas, such as using:
  (1) a hydraulic pipeline dredge rather than mechanical excavation to reduce sediment resuspension; and
  (2) silt curtains to contain turbid waters and prevent entrainment of fish in dredge equipment.
- Preparation of surveys before and after the completion of a dredging project, the extensiveness of which varies depending upon the scale of a project, but which may include the following:
  (1) profiles of water depth and sediment thickness;
  (2) testing of sediment cores before dredging to determine presence of nutrients and contaminants, based on protocols from the Indiana Department of Environmental Management and site-specific circumstances;
  (3) aquatic plant community surveys, using the DNR-approved Tier 1 and 2 standard protocols;
  (4) surveys of potentially affected fish and wildlife with particular attention to state or federally listed species, which may include:
    (a) breeding birds in grass and wet shrub habitats in April and May;
    (b) shorebird populations and habitat use during the spring and fall migration periods; and
    (c) amphibian, reptile, and fish data collection.
- Protection of specified areas, depending on lake conditions and project circumstances, as follows:
  (1) Areas of wetland vegetation greater than 625 square feet should generally be avoided, as should significant stands of floating-leaved and emergent wetland plants.
  (2) Dredging generally should not occur within 10 feet of the shoreline or water line (except as warranted by site-specific conditions, such as in narrow man-made channels) to avoid destabilization of seawalls and other shoreline structures.
  (3) Dredging generally should not occur in water with a depth of more than six feet unless the dredge material was sediment that:
    (a) resulted from upstream erosion;
    (b) did not naturally occur in the lakebed; or
    (c) accumulated at greater than six feet but within the prior approved depth of a man-made channel.
- Replacement of biotic habitat structural elements or other mitigation may be appropriate where:
  (1) Logs would be removed during dredging activities. A permit may be conditioned to require recordation of the number, size, length, and attributes of logs removed during dredging, as well as for their replacement after dredging with logs or other structures with similar attributes. These attributes may include branches that overhang the lake.
  (2) Structural components, such as logs and boulders, would be removed during dredging activities. A permit may be conditioned so these components, to the extent practicable and with due consideration for navigational safety, are replaced on-site or in adjacent areas.
  (3) Areas along the shoreline would be disturbed by discharge pipes or by the dredging operation. A permit may be conditioned to require disturbances are appropriately restored.

5. History and Effective Date

The Natural Resources Commission approved this document during a meeting held on May 19, 2009. The effective date is June 1, 2009.

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